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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/612,334

07/02/2003

Horst Wittur

VGBS-40004

3803

30593 7590 04/14/2010
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EXAMINER

KRUER, STEFAN

ART UNIT

PAPER NUMBER

3654

MAIL DATE

DELIVERY MODE

04/14/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/612,334	Applicant(s) WITTUR ET AL.	
	Examiner Stefan Kruer	Art Unit 3654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22 - 41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22 - 41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 November 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>15OCT09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The objections to the drawings are obviated by the amendment to **Claim 28**.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claim(s) 22-30 and 35-41** is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Berkovitz U.S. Patent No. 3838752 in view of Aulanko et al. U.S. Patent No. 5429211, Scholder U.S. Patent No. 5975826, and Nation U.S. Patent No. 4158283.

4. **Regarding claim 22 and 36-41**, Berkovitz discloses a gearless cable-operated elevator, the elevator comprising:

5. a cage 20;
6. a counterweight 22;
7. a carrier cable 86;
8. a drive sheave 82; and
9. a counter sheave 84;
10. wherein the cage 20 and the counterweight 22 are supported by the carrier cable 86,

Art Unit: 3654

11. wherein the drive sheave 82 and the counter sheave 84 are spaced apart from each other,

12. wherein the carrier cable 86 wraps at least partially around the drive sheave 82 a first time, at least partially around the counter sheave 84 a first time, at least partially around the drive sheave 82 a second time, and at least partially around the counter sheave 84 a second time, shown in Figure 6A,

13. wherein the drive sheave 82 is configured to act on the carrier cable 86 in order to move the cage 20 and the counterweight 22,

14. wherein the drive sheave 82 includes semicircular grooves,

15. wherein the semicircular grooves include undercut portions 32, and

16. wherein the undercut portions have a width to cable diameter ratio of about 0.375,

17. wherein the drive sheave 82 is configured so that the of carrier cable 86 runs in the semicircular grooves.

18. Berkovitz is silent concerning an elevator without machine room, the elevator comprising: a plurality of carrier cables; cage guide rails; counterweight guide rails; wherein the cage is guided by the cage guide rails, wherein the counterweight is guided by the counterweight guide rails, wherein each cable of the plurality of carrier cables is a steel cable, wherein each cable of the plurality of carrier cables has a nominal diameter greater than 5 mm and less than 7 mm, wherein the undercut portions have a width greater than 1 mm and less than 3 mm, wherein a ratio of a diameter of the drive

Art Unit: 3654

sheave to a nominal diameter of each cable of the plurality of carrier cables is greater than or equal to 30:1 and less than or equal to 40:1.

19. Aulanko et al. teaches an elevator without machine room, the elevator comprising:

20. a plurality of carrier cables 3;

21. cage guide rails 10;

22. counterweight guide rails 11;

23. wherein a cage 1 is guided by the cage guide rails 10,

24. wherein a counterweight 2 is guided by the counterweight guide rails 11,

25. Scholder teaches wherein each cable of a plurality of carrier cables 75 is a steel cable,

26. wherein each cable of the plurality of carrier cables 75 has a nominal diameter greater than 5 mm and less than 7 mm, Column 5, Lines 56 and 57.

27. Nation teaches wherein a ratio of a diameter of the drive sheave to a nominal diameter of each cable of the plurality of carrier cables is greater than or equal to 30:1 and less than or equal to 40:1, Column 6, Lines 37-40.

28. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the cage disclosed by Berkovitz with guide rails as taught by Aulanko et al. to guide the cage.

29. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the cable disclosed by Berkovitz a plurality of carrier cables being a steel cable, wherein each cable of the plurality of carrier cables has a nominal diameter

Art Unit: 3654

greater than 5 mm and less than 7 mm as taught by Scholder to facilitate the lifting of the load.

30. Furthermore, It would have been obvious to one of ordinary in the art at the time of the invention was made to make the cable disclosed by Berkovitz a plurality of carrier cables wherein each cable of the plurality of carrier cables has a nominal diameter greater than 5 mm and less than 7 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Minor differences between the prior art and a claimed device may be a matter of design choice absent evidence to the contrary. See *In re Rice*, 341 F.2d 309, 314 (CCPA 1965). Where the difference between the claimed invention and the prior art is some range or other variable within the claims the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range. *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990).

31. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the ratio of a diameter of the drive sheave to a nominal diameter of carrier cable disclosed by Berkovitz is greater than or equal to 30:1 and less than or equal to 40:1 as taught by Nation to decrease the diameter of the drive sheave and reduce the torque required to drive the elevator.

32. Furthermore, It would have been obvious to one of ordinary in the art at the time of the invention was made to make the ratio of a diameter of the drive sheave to a nominal diameter of carrier cable disclosed by Berkovitz greater than or equal to 30:1

Art Unit: 3654

and less than or equal to 40:1, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Minor differences between the prior art and a claimed device may be a matter of design choice absent evidence to the contrary. See *In re Rice*, 341 F.2d 309, 314 (CCPA 1965). Where the difference between the claimed invention and the prior art is some range or other variable within the claims the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range. *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990).

33. **Regarding claim 23**, Berkovitz is silent concerning wherein the ratio of the diameter of the drive sheave to the nominal diameter of each cable of the plurality of carrier cables is substantially 34:1.

34. Furthermore, It would have been obvious to one of ordinary in the art at the time of the invention was made to make the ratio of a diameter of the drive sheave to a nominal diameter of carrier cable disclosed by Berkovitz substantially 34:1, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Minor differences between the prior art and a claimed device may be a matter of design choice absent evidence to the contrary. See *In re Rice*, 341 F.2d 309, 314 (CCPA 1965). Where the difference between the claimed invention and the prior art is some range or other variable within the claims the applicant must show that the particular range is critical, generally by showing that the claimed range achieves

Art Unit: 3654

unexpected results relative to the prior art range. *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990).

35. **Regarding claim 24 and 25**, Berkovitz is silent concerning wherein the elevator is configured for cage loads less than or equal to 2,000 kg and wherein the elevator is configured for cage loads greater than or equal to 300 kg and less than or equal to 1,000 kg.

36. Aulanko et al. teaches wherein an elevator is configured for cage loads less than or equal to 2,000 kg, and

37. wherein the elevator is configured for cage loads greater than or equal to 300 kg and less than or equal to 1,000 kg, Column 6, Lines 41-45.

38. It would have been obvious to one of ordinary skill in the art at the time of the invention to make to configure the cage load disclosed by Berkovitz for cage loads less than or equal to 2,000 kg and greater than or equal to 300 kg and less than or equal to 1,000 kg as taught by Aulanko et al. to allow for a motor with a very flat construction optimizing the space within a hoistway.

39. Furthermore, It would have been obvious to one of ordinary in the art at the time of the invention was made to configure the cage load disclosed by Berkovitz for cage loads less than or equal to 2,000 kg and greater than or equal to 300 kg and less than or equal to 1,000 kg, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Minor differences between the prior art and a claimed device may be a matter of design choice absent evidence to the contrary.

Art Unit: 3654

See *In re Rice*, 341 F.2d 309, 314 (CCPA 1965). Where the difference between the claimed invention and the prior art is some range or other variable within the claims the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range. *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990).

40. **Regarding claim 26**, Berkovitz discloses wherein an axis of rotation of the drive sheave 82 is parallel to an axis of rotation of the counter sheave 84.

41. **Regarding claims 27 - 28**, Berkovitz discloses wherein a plane in which the drive sheave 82 rotates is displaced from a plane in which the counter sheave 84 rotates.

42. **Regarding claim 29**, Berkovitz discloses wherein the elevator is configured so that the drive sheave 82 is higher than the counter sheave 84.

43. **Regarding claim 30**, Berkovitz discloses wherein a suspension ratio of the cage 20 is 1:1 or 2:1.

44. **Regarding claim 35**, Berkovitz discloses wherein the counter sheave serves as a distancing deflection sheave.

45. **Claim(s) 31-34** is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Berkovitz U.S. Patent No. 3838752 in view of Aulanko et al. U.S. Patent No. 5429211, Scholder U.S. Patent No. 5975826, and Nation U.S. Patent No. 4158283 as applied to claim 22 above, and further in view of Hollowell International Publication No. 99/43595.

Art Unit: 3654

46. **Regarding claim 31**, Berkovitz is silent concerning wherein the drive sheave and the counter sheave are operatively attached to the cage.

47. Hollowell teaches wherein a drive sheave 30 and a counter sheave 34 are operatively attached to a cage 16.

48. It would have been obvious to one of ordinary skill in the art at the time of the invention to operatively attach the drive sheave and the counter sheave of the drive sheave drive disclosed by Berkovitz to the cage as taught by Hollowell et al. to accommodate the elevator components within the environmental restraints of the shaft.

49. **Regarding claim 32**, Berkovitz discloses wherein a suspension ratio of the cage 20 is 1:1, 2:1, or 4:1.

50. **Regarding claim 33 and 34**, Berkovitz is silent concerning wherein the drive sheave is operatively attached to a top or bottom of the cage, and wherein the counter sheave is operatively attached to the top or bottom of the cage.

51. Hollowell teaches wherein the drive sheave is operatively attached to a top or bottom of the cage, and

52. wherein the counter sheave is operatively attached to the top or bottom of the cage, referred to in claims 2 and 3.

53. It would have been obvious to one of ordinary skill in the art at the time of the invention to operatively attach the drive sheave and the counter sheave of the drive sheave drive disclosed by Berkovitz on the top or bottom of the cage as taught by Hollowell et al. to accommodate the elevator components within the environmental restraints of the shaft.

Response to Arguments

54. Applicant's arguments filed 23 November 2009 with respect to **Claims 22 - 23** have been considered but are found not to be persuasive.

55. With respect to Appellant's argument that Scholder, though teaching the claimed diameter of steel wires, affronts industry-specific safety codes and therefore would not have been obvious to one having ordinary skill in the art, said argument neither overcomes the teachings nor the implication that the claimed invention lacks utility as well.

56. Additionally, disclosures and teachings drawn from related art and the ability or suggestion to combine references may be found in the nature of the problem to be solved or the knowledge of persons of ordinary skill in the art. Furthermore, there is no requirement that the combination meet the requirements of said codes for functionality.

57. Finally with respect to Scholder, that Scholder is classified in 414 (as well as 254, directed to "cable hoists"), said class is directed to article handling that includes lifting, and applicant's invention as claimed does not require consideration for magnitudes or forms of loads, for instance, that would preclude consideration of Scholder.

58. With respect to Nations teaching away from using steel cables in lieu titanium cables, wherein said titanium cables enable the range of D/d as claimed, Nations demonstrates consideration for D/d ratios within the art for reason(s)/motivation(s) of the instant invention and furthermore reviews the use of ¼"-dia. stainless steel cables as well in a comparison to 1/4" titanium cables of varying alloys (Col. 7, L. 55 - Col. 8, L. 8).

59. Appellant's arguments appear to be against the references individually. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Baranda et al (WO 99/03658) is cited for review of industrial norms with respect to cable and sheave diameters and their relevance in determining rope pressure and traction, as well as the use of aramid fibers alone, or in combination with steel fibers, as load-bearing members and the desire to reduce the "D" of "D/d" to permit "the use of less costly, more compact, high speed motors as the drive machine

Art Unit: 3654

without the need for a gearbox". Baranda et al review further the disadvantageous aspect(s) of aramid fibers as the primary load-bearing members whereby **high-carbon steel fibers** forming a plurality (i.e. five(5)) cables forming nominal diameters of less than 2.0 millimeters each are recommended, said cables embedded in a flat belt but being the primary load-bearing members of said belt nevertheless.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Kruer whose telephone number is 571.272.5913. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Q. Nguyen, can be reached on 571.272.6952. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/John Q. Nguyen/

Supervisory Patent Examiner, Art Unit 3654

/Stefan Kruer/
Examiner, Art Unit 3654
10 April 2010